

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
29 December 2004 (29.12.2004)

PCT

(10) International Publication Number
WO 2004/113670 A2

- (51) International Patent Classification⁷: **E21B 43/12, H02K 15/03**
- (21) International Application Number: **PCT/GB2004/002667**
- (22) International Filing Date: **21 June 2004 (21.06.2004)**
- (25) Filing Language: **English**
- (26) Publication Language: **English**
- (30) Priority Data:
0314553.9 **21 June 2003 (21.06.2003)** **GB**
- (71) Applicant (for all designated States except US): **WEATHERFORD/LAMB, INC.** [US/US]; 515 Post Oak Boulevard, Suite 600, Houston, TX 77027 (US).
- (71) Applicant (for IS only): **HARDING, Richard, Patrick** [GB/GB]; Marks & Clerk, 4220 Nash Court, Oxford Business Park South, Oxford, Oxfordshire OX4 2RU (GB).
- (72) Inventors; and
(75) Inventors/Applicants (for US only): **YURATICH, Michael, Andrew** [US/GB]; 14 Old Priory Close, Hamble, Hampshire SO31 4QP (GB). **FRASER, Alan, Thomas** [GB/GB]; 4 Towers Drive, Crowthorne, Berkshire RG45 7LR (GB).
- (74) Agent: **HARDING, Richard, Patrick**; Marks & Clerk, 4220 Nash Court, Oxford Business Park South, Oxford, Oxfordshire OX4 2RU (GB).
- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).
- Published:**
— without international search report and to be republished upon receipt of that report
- For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

(54) Title: **ELECTRIC SUBMERSIBLE PUMPS**

(57) Abstract: A method of pumping wellbore fluid, comprising the steps of: installing an electric submersible pump in a wellbore; and operating the pump at more than 4,500 rpm to pump the wellbore fluid. Pumping in this manner provides a number of advantages in use in that the required high-speed motor and pump is shorter for a given power than existing arrangements, and provides increased reliability due to reduced complexity. A much shorter motor/pump combination also allows such equipment to be used in deviated boreholes with a reduction in damage due to mishandling and bending, as well as facilitating assembly and testing in the manufacturer's plant.

WO 2004/113670 A2